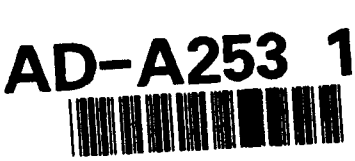

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OPERATING A DINOSAUR IN THE 1991s -- Operational Thoughts for Employing B-52s

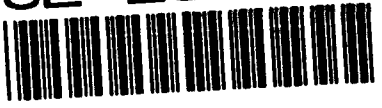
by
Robert L. Ostrander, Jr.
Colonel, U.S. Air Force

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Departments of the Navy or Air Force.

Signature: Robert L. Ostrander Jr

18 May 1992



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The B-52, a 30 plus year old airplane, was very effective in the Gulf War, striking a variety of targets. Its effect, on hammering field troops, was outstanding in breaking their will to fight. A similar effect occurred during the Southeast Asian Conflict. The terror this heavy bomber can strike in the hearts of the enemy cannot be measured and should not be ignored. Consequently, theater operational commanders, not only must plan for and fight conflicts in their area of responsibility, they must know what their apportioned forces can do, and what they want them to be capable of doing. With theater commanders commanding a wide array of forces from different services, it is very important that they make Service Chiefs aware of their desires, so that capabilities can be developed during peacetime. One important way of analyzing how forces have been applied, and what errors have occured in deciding the most appropriate way of employment, is to look at history. This will become even more important with the demise of Strategic Air Command, because the art of applying a heavy bomber could be lost. Theater commanders must be aware of what weapon systems, like B-52s, can and cannot do in

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Abstract of

OPERATING A DINOSAUR IN THE 1990s --

Operational Thoughts for Employing B-52s

The B-52, a 30 plus year old airplane, was very effective in the Gulf War, striking a variety of targets. Its effect, on hammering field troops, was outstanding in breaking their will to fight. A similar effect occurred during the Southeast Asian Conflict. The terror this heavy bomber can strike in the hearts of the enemy cannot be measured and should not be ignored. Consequently, theater operational commanders, not only must plan for and fight conflicts in their area of responsibility, they must know what their apportioned forces can do, and what they want them to be capable of doing. With theater commanders commanding a wide array of forces from different services, it is very important that they make Service Chiefs aware of their desires, so that capabilities can be developed during peacetime. One important way of analyzing how forces have been applied, and what errors have occurred in deciding the most appropriate way of employment, is to look at history. This will become even more important with the demise of Strategic Air Command, because the art of applying a heavy bomber could be lost. Theater commanders must be aware of what weapon systems, like B-52s, can and cannot do in war, and apply them appropriately. Only then can success, like that attained in the Gulf War, be repeated.

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The US Military of the 1990's faces challenges of historic proportions. The rapid unfolding of world events continues to put the military in an extremely reactive mode. The end of the Cold War, plus the demise of the Soviet Union, and its communist ideology, produced a world-wide reaction that rivaled that of the end of World War II. Now that the 'threat' is gone, opportunities for reaping huge 'peace dividends', by reducing the size of 'massive' military machines, continues to gain tremendous momentum. But, Iraq's invasion of Kuwait, and the subsequent Gulf War, reminded people that threats, or potential threats, still exist. General Lee Butler, CINCSAC, in March 1991, described the international, post-cold war environment as dominated by six new and historic forces:

"(1) [former] Soviet Union's retrenchment...events so consequential they are akin to a virtual second Russian Revolution;

(2) German reunification and its impact on the European security agenda;

(3) the emerging prospects for a 21st century Concert of Europe;

(4) the intensification of intractable, regional strife and conflict, exacerbated by impatient populations and the proliferation of high technology weapons;

(5) catastrophic failures on the human condition due to

economic and political disintegration; and

(6) the rise of new centers of power with either hegemonic or strongly competitive goals."[1]

Since his comments, these have proven to be right on target, as the 1991 Gulf War, and the on going problems of the former Soviet Union, and her former allies, will attest to. The 1992 US Military Strategy reflects this in its emphasis on regional versus global concerns. Regional hot spots, or flash points, will continue to flare up around the world. However, even though these will continue to exist, the cooling of the former Soviet threat will allow some US Military reduction, thereby allowing more resources to be targeted at domestic problems. In this respect, some 'peace dividend' is available.

Accepting this reality, major efforts are underway to reduce and reorganize the military so that improved quality in not only equipment and people, but also the method of fighting, will provide the force multiplier necessary for a reduced force to handle world hot spots. Increased emphasis on Joint Operations; designing weapon systems for multiple missions and eliminating those with single mission design; and reorganizing its basic structure, are some of the efforts being undertaken by the US Air Force. Jointness and reorganization are extremely important features of the Air Force's attempt to meet force reduction challenges. Although critical to maintaining a reduced air force, that is still second-to-none in the world, the expertise for efficient employment of air weapon systems in future theater conflicts may be disappearing. Specifically, what a B-52 can offer an operational theater commander in a future conflict, may not be known

or appreciated. This problem will potentially exist because, with the demise of Strategic Air Command, theater air component commanders may, or may not have the expertise available as to how to efficiently employ heavy bombers; something that exists today. Therefore, it is important to capture as much critical knowledge, based on experience, as possible. In addressing this issue, three phases will be looked at in analyzing this 30 plus year old, extremely versatile, war horse. First, a brief look at its past (up to 1985)--how it was used and what it was designed for. Next, a current (1985 through Desert Storm) look at some of its capability and what it provided the theater commander during Desert Storm. Finally, a look at what it can potentially provide in the future (after Desert Storm into the late 1990's) by brainstorming some possible roles and missions. The purpose for looking at each of these phases is to acquaint, remind and explore the evolved, or potential, capabilities of the B-52 for the theater operational commander.

B-52s Make History

Bombing from an aircraft, essentially, had its beginnings during World War I. Actual dropping things from the air, occurred much earlier, using some type of balloon. But, using an airplane, in the true since of the word, for bombing, had its beginnings during the First World War. Although extremely primitive when compared to todays capability, this ability to project power in a regime that was new and unexplored, demonstrated a fighting potential that was unmatched in warfare. Aviation pioneers, who latched onto this technological

breakthrough, saw it as being a panacea to warfare. Aviation advocates, such as Maj Gen James E. Fechet, who became chief of the Army Air Corps in 1927, stated:

> "The objective of war is to overcome the enemy's will to resist, and the defeat of his army, his fleet or the occupation of his territory is merely a means to this end and none of them is the true objective. If the true objective can be reached without the necessity of defeating or brushing aside the enemy force on the ground or water and the proper means furnished to subdue the enemy's will and bring the war to a close, the object of war can be obtained with less destructuon and lasting after effects than has heretofore been the case. At present the Air Force provides the only means for such an accomplishment."2

This of course was proven erronous time and again. The allied attempt to defeat the Germans or Japanese, during World War II, solely using massive bombing campaigns, are good examples of this flawed thinking. But, the fact remained that aerial warfare did provide the Operational Commander a capability that, heretofore, he did not have. Specifically, this capability manifested itself in aerial bombardment. Aerial bombers developed into massive war machines. A basic philosophy that evolved said 'if bombing was good, then more is better'. Large airplanes, such as the B-17 and B-29, that could carry large bomb loads deep into enemy territory, were developed. Industrial and population centers, areas at the heart of the enemy's will and

war-making capability, were now subject to destruction. This change, in types of targets, gave the commander a wider range of options, with theater wide focus versus strictly battlefield limits. Using B-29's to drop atomic bombs on Hiroshima and Nagasaki demonstrated the awesome potential that existed with aerial bombardment. Unfortunately, belief in bomber invincibility, another flawed panacea associated with aviation, proved very costly. But, it did show the commander that along with this capability, there existed limitations that had to be planned for.

In 1946, following World War II, long range bombing became consolidated in the Strategic Air Command (SAC), one of three major commands of the United States Army Air Forces. "General Carl Spaatz, Commanding General of the Army Air Forces, issued this new command's first mission: 'The Strategic Air Command will be prepared to conduct long-rang offensive operations in any part of the world either independently or in cooperation with land and naval forces...'"[3] Even though the Air Force became a separate military service in 1947, SAC's basic charter remained unchanged. SAC's nuclear capability was in its infancy and its emphasis began to shift to the primacy of the nuclear mission. Now SAC had two missions, nuclear ond conventional. SAC's B-29's were again called up in a conventional role, during the Korean War, and reinforced the proven value of long range aviation in combat.

B-29's eventually gave way to B-47's and, in 1955, SAC received its first B-52, the premiere heavy bomber. The US emphasis on nuclear weapons made the B-52 nuclear mission primary. Surface-to-air missiles, brought the B-52's flight regime from its designed high

altitude operation to low altitude, a perfect example of this airplanes versatility. Low altitude was considered more difficult so training emphasis was on the low altitude regime. It still practiced high altitude releases, but, primarily, as they were associated with single weapon nuclear releases. The B-52's nuclear role was everything, and many conventional bombing lessons learned, for use of heavy bombers, during World War II and the Korean War, had to be relearned during the Southeast Asian Conflict, the first time B-52's flew actual combat.[4]

The first B-52 bombing mission occurred on 18 June 1965[5], and the last on 15 August 1973[6], more than eight years of bombing. Hundreds of B-52s, flown by hundreds of aircrews, participated in this conflict. Each aircraft, initially, could carry a total of 51 750-pound bombs (27 internal and 24 external). With a 'Big Belly' modification on B-52D models, the internal load carrying capability increased to 84 500-pound bombs or 42 750-pound bombs, or a total of 108 500-pound or 66 750-pound bombs per airplane.[7] Employment procedures were developed, using waves of three-ship cells, close formation, high altitude, bombing. The term area bombing, had a new meaning. Mutual support, electronic warfare jamming, cell evasive maneuvers, multi-target missions, that is, dropping the internal and external loads on different targets, and a host of other procedures were developed to enhance bombing effectiveness. However, because of the primacy of SACs nuclear mission, B-52s remained under SACs control, and were not relinquished to the theater commander. In addition, B-52 targets were approved and controlled at the White

House. Even with these limitations, B-52s were very effective on the the enemy's will. The 1972 11-day air campaign, Linebacker II, where B-52's hammered North Vietnam relentlessly, was extremely effective. In one 30 minute period, on 26 December, 116 B-52's and over 300 tactical aircraft were over North Vietnam. "The British expert on war in Southeast Asia, Sir Robert Thompson, stated:

> 'In my view, on December 30, 1972, after eleven days of those B-52 attacks on the Hanoi area, you had won the war. It was over!...They and their whole rear base at that point were at your mercy. They would have taken any terms. And that is why, of course, you actually got a peace agreement in January, which you had not been able to get in October'."[8]

Following the war in Southeast Asia, B-52s reverted back to their primary nuclear role concerning training, with very limited conventional training activity. As a result of the Southeast Asian experience, B-52s had developed, for the theater commander, an awesome conventional capability. This was, however, in only one dimension, that of high altitude bombing. The B-52 was an outstanding, shock effect weapon when it came to war. But, as had happened after World War II, the precision associated with this capability was lost over time. The 'Big Belly' modified B-52s retired and only limited conventional training continued. Some limited maritime activity was added, but only in the area of mine-laying and sea surveillance. Except for a limited Strategic Projection Force, using low altitude B-52H conventional delivery, in support of the Rapid Deployment Joint

Task Force 9, little changed in the B-52 mission until 1985, when a fighter pilot became CINCSAC. This was the beginning of the B-52's current capability, and the next phase to examine.

Todays B-52 Capability

General Larry Welsh became CINCSAC in 1985 followed, in 1986, by General John Chain, both career fighter pilots. General Chain had a significant impact on changing how SAC did business, especially in using B-52s. He saw the B-52's potential for conventional operations, far and above what it had demonstrated in the past. With the likelihood of a regional conventional conflict, and the remote possibility of global nuclear war, he increased the emphasis on conventional operations. Since SAC's primary mission was still nuclear, he retained central control of nuclear planning and training at SAC Headquarters. For conventional operations, however, he decentralized its planning and training to the individual bomb wings. Each wing had a real world conventional mission to plan and train for, and to be capable to launch and execute, with minimal notice. Under his direction, SAC units developed a bare-base, warfighting capability. This concept required units to be able to deploy to an airfield, with an existing runway, that had little to no existing support capability, and set up operations to launch strike sorties against simulated, or real, enemy targets. Units were to bring, and make arrangements to obtain, everything necessary, to sustain operations for an undetermined period of time. These deployments were to be worldwide.

The B-52 conventional mission had changed dramatically. Instead of concentrating on high altitude, area bombing, General Chain pushed for low altitude precision attack. Low level multi-axis and stream formation attacks, with only seconds separating aircraft, became the norm. Emphasis on live weapons drops, with real impact scores, versus, simulated releases, using radar scoring of an emitted aircraft tone, increased. B-52 units began to routinely participate in Red Flag exercises for two week periods of time, flying in the most realistic training environment that exists today. B-52 units developed communications-out procedures for every aspect of their mission. To ensure proficiency in all areas, Operation Readiness Inspections now evaluated, not only the B-52's nuclear role, but also its conventional mission as well. B-52 crews became very proficient in low altitude conventional operations, across any terrain. These missions were flown either in daylight or at night, and using night vision goggles, B-52 aircrews were able to fly even lower. The entire B-52 program was being designed to present an operational theater commander, a very capable B-52 conventional package.

In addition to its conventional mission, B-52s began to take on a much greater maritime role. Increased emphasis on sea surveillance and mine-laying entered the B-52 picture. All crews had to become proficient and maintain currency for either mission. B-52s even developed a limited capability to carry antiship, Harpoon missiles. Certain units were totally removed from their nuclear mission and became specialist in both conventional and maritime roles.

When Desert Shield began, the first B-52 unit to deploy was one of

SAC's conventional/maritime only units. By the time Desert Storm began, however, many more units were degraded from their nuclear mission and became part of the B-52 conventional force. General Schwarzkopf, remembering the B-52's contribution to the Southeast Asian War, requested maximum B-52 participation in the Gulf War. The B-52s flew 1,624 sorties, operating from four separate forward deployed bases, plus the CONUS. They dropped 25,700 tons of munitions, approximately 30% of all US bombs, and 42% of the total bomb tonnage dropped by the Air Force.[10] Also, for the first time in history, SAC relinquished total control of B-52s by 'chopping' them to the theater CINC's operational control. This greatly enhanced their use.

During Desert Storm, except for the first few days, where B-52s were used in the low altitude regime, they were primarily tasked to high altitude area bombing against Iraqi troops. Once air superiority was achieved, low altitude AAA became the greatest threat to coalition aircraft. Therefore, high altitude bombing became the safest, most effective use of B-52s. But, these highly proficient, B-52 'low altitude' bombing experts had trouble adjusting to high altitude procedures. Once again, as had been required at the start of World War II, and the Southeast Asian War, bomber crews had to relearn high altitude bombing. Fortunately, because of some high altitude exposure during previous training, the adjustment required by the aircrews did not take quite as long. Ultimately, B-52s, 30 plus year old heavy bombers, made superb contributions. Primarily focused on Iraq's Republican Guard and other army field units, B-52s carried bomb loads,

with up to 51 bombs per airplane, to pound away at Iraq's will to fight.

> "As had been true in the Vietnam War, prisoner interrogations revealed that the B-52 was the weapon ground forces feared most. Between 20% and 40% of Iraqi troops attacked from the air deserted their units prior to G-day [start of the ground war], and the B-52 strikes appear to have played the major role.... One troop commander, interrogated after the war, stated he surrendered because of B-52 strikes. 'But your position was never attacked by B-52s,' the interrogator exclaimed. 'That is true,' he stated, 'but I saw one that had been attacked."[11]

Obviously, the shock effect of B-52s, either actual or perceived, still plays a vital role in conventional operations, and is something theater commanders should not ignore.

Future Conflicts Using B-52s

To discuss possible uses of B-52s in future conflicts, so that theater operational commanders can gain a better appreciation of their capability, it is important to develop a baseline of understanding. To do this it is important to first discuss what a B-52 is not, and then what it is, and could be. The B-52 is not a high performance, highly maneuverable, stealthly aircraft. Although it has had upgrades to its avionics, electronic countermeasures equipment and armament, it does not have state-of-the-art systems. Consequently, it requires a lot of support. When compared to more modern airplanes, it is very

inefficient in fuel consumption. Depending on its distance to target, it can be very tanker dependent. It has no active defense, only passive. It is very dependent on total surprise, or a defensive support package of other assets, unless it flys in benign environment, where air superiority has been acquired. The B-52 is definitely a politically sensitive weapon, consequently, establishing forward basing can be a problem. But with all of these negatives, there are some very important positives.

The B-52 is a weapon that exists now, and its capability has been proven time and again, in two separate wars. It is a heavy, all weather bomber, that can carry more conventional armament than any other existing airplane in the US inventory. It carrys a tremendous amount of fuel, enabling it to fly great distances or loiter for hours. Being air refuelable, it can virtually launch from the US and strike any target in the world, and recover to the same base it launched from. Even though it does not have state-of-the-art systems, it was built with systems that are extremely redundant, making it a weapon that is relatively hard to bring down, for something so large. The B-52 is a versatile airplane. Through the years it has developed a capability to deliver various gravity weapons and missiles from internal and external means. It has satellite communications capability and will soon have satellite global positioning as well. A terrain avoidance system, with low light and infrared sensors allows the B-52 to fly low level during daylight or darkness. Having recently added night vision goggles, aircrews can fly all phases of flight in total darkness. The B-52 has a powerful electronic

countermeasures capability. When employed in a three ship formation, using mutual support jamming, they can literally blank out most enemy radars. Finally, the B-52 has a historical reputation that is known worldwide. Employed in its standard three ship formation, with each delivering approximately 50 bombs, from an altitude too high to hear, can cause tremendous morale problems for the enemy. If used repeatedly, around the clock, its not a surprise to have reactions like that of the Iraqi prisoner mentioned earlier.

Having now established a baseline to work with, that is a result of historic performance, it is important to address the use of B-52s in future conflicts. Theater operational CINCs have a requirement to develop plans to counter conflicts that may errupt in their area of responsibility. They plan strategies and determine forces that would be required. In essence, they have an impact on how forces are trained, equipped, and developed. B-52s can play an important role in most theater conflicts. But, what capability they bring to the field, and how they are employed, will determine how effective their participation will be. For example, in World War II, Southeast Asia, and in the Gulf War, heavy bombers were most efficient in the high altitude regime. But, in every case, aircrews had to learn, and hone their skills 'on the job', during the conflict. With this in mind, maybe it's time to make the high altitude aspect of the B-52 mission as important, with the appropriate level of preparation and training, as its low level mission. It could be questionable that the B-52 has a viable low level penetration mission today. With the sophisticated defenses that currently exist, anything other than a complete surprise

to the enemy, would be extremely short lived. Also, low level flight greatly reduces an aircraft's service life, when compared to high altitude. It simply becomes a matter of priority as to what is most important at the time. But, if the B-52 is to be stretched into the next century, then some reduced low level activity is probably required.

A feature of the B-52 that has not been fully explored, is its ability to carry and launch cruise missiles. The B-52 has had the capability to carry air launched cruise missiles, both internally and externally, for years, in support of its nuclear role. During the Gulf War, very limited numbers of B-52s carried conventional cruise missiles from the CONUS, and launched them against Iraqi targets. This definitely demonstrated its global capability. They could have been much more effective; however, if more B-52s carried them, using both internal and external means, from shorter distances. Many more could have been applied to Iraqi targets. Obviously, some means of prepositioning, or an efficient means of deploying these missile to the theater would need to be developed.

During the Gulf War, B-52s launched a very limited number of anti-radiation missiles against Iraqi air defense radars. This capability, though still in its infancy, should be explored to the maximum. B-52s carrying these drones, along with gravity weapons or other missiles, would be a formidable force. This active defensive threat, along with its passive defense and offensive ability, would reduce some of the necessary defensive support package of other assets that is needed today. Again, however, to be efficiently used, some

prepositioning or other means to bring these weapons to the theater, is necessary.

The B-52 has satellite communications capability. It should be possible to have a data link with other forces in the air, on the ground, or at sea. This could be used for inflight target change information, any required data exchange, early warning of threats, and any other required, important information that needs to be passed. This would enable forces to communicate without using voice communications, over lines or airways, that are currently saturated, and would also prevent giving away someones position by breaking communications silence. This data link capability would definitely enhance B-52s working with naval forces. Also, after the B-52 gets its improved infrared system, that is currently being developed, it is data linked to the Joint Surveillance and Target Attack Radar System (JSTARS), then perhaps the problems encountered during the Gulf War, concerning SCUD hunting, would be reduced. The resolution associated with this new infrared system is definitely state-of-the-art.

There are numerous possible uses of the B-52 in warfare, and only a few possibilities have been addressed in this paper. The basic facts remain; however, it exists today, with a proven record; it is extremely versatile in where it can fly and what it can bring to the conflict; and SAC's current B-52 conventional capability is a whole package, to include bare-base operations and unit strike planning.

Conclusion

Operation Desert Storm was an extremely effective Joint and

coalition operation. To some extent, it was the culmination of many changes and revisions from past US experiences. The authority and responsibility of the operational theater commander, as intended by the 1986 Goldwater/Nichols Act, produced the intended results. Gulf War successes will be used as a measuring stick for future conflicts. As with the Gulf War, future conflicts will be commanded by theater CINCs, from different branches of service, with different expertises, that can call up a wide array of weapons and forces. Their success will be dependent on, not only what weapons they have, but on how they are employed. During peacetime, along with constructing war plans, and commanding the fighting forces in their theater, they have the requirement to convey, to Service Chiefs, what capabilities they want their apportioned forces to have. To do this effectively, they must know what currently exists, and what potentially could be developed. These are some of the areas this paper has addressed concerning B-52s. Hopefully, a greater appreciation of their capability is now realized.

As shown in two separate wars, B-52s are a formidable force for an enemy to deal with. If used properly for the situation, it can be very effective in helping to break the back of the enemy. But, both wars also showed that the training, during peacetime, slightly missed the mark in preparing B-52 aircrews for how they were to be primarily employed. This was seen in the over concentration on single versus multiship operations, with greater emphasis on low level rather than high level, prior to the Southeast Asian conflict, and low level versus high level, formation bombing, prior to the Gulf War. In both cases, aircrews trained for viable missions, prior to the conflict.

But, in both cases, aircrews became specialist in one phase of combat, at the expense of others. Unfortunately, it was not the primary one they were to execute. Consequently, aircrews had to learn during the conflict how best to perform high altitude, formation bombing.

During the Gulf War, several new weapons were employed by B-52 aircrews. Although limited in their use, their potential, for making the B-52 an even more formidable weapon system, was obvious, and further shows the vast flexibility this airplane has. It is one of the most flexible air delivery platforms that exists today. Also, there are several other modifications that are being developed, such as a new infrared system, and expansion of its satellite comunication/ navigation capability. Future decisions on development will dictate how far these will progress.

Even though the B-52 is fighting old age, it is still the only heavy bomber, with a conventional capability, in the US inventory today, and in the near future. Consequently, decisions must now be made as to how it will be employed in the future, so that training can be optimized. This is where theater operational commanders can have a major imput. Since they will fight with the forces they are given, they have a vital interest in what these forces are capable of. Before specific questions concerning what B-52s will carry are answered, a major question, concerning B-52 employment, must be decided. Should the B-52 operate primarily in the high altitude structure, or the low altitude environment, or a combination of both? Theater commanders will have to answer this question. The answer will have an impact on how long the B-52 lasts and how effective its

employment will be in a future conflict.

Recommendations

The B-52 has a viable conventional mission for many years to come. With the demise of the Soviet Union, more effort can, and should be focused on its conventional role. This centers primarily on peacetime training. Since both previous wars demonstrated that the lion's share of the B-52's effort was high altitude, formation bombing, aircrew training should have primary focus on high altitude procedures. This is not to ignore its formidable low altitude, and maritime capability, but to realistically prepare for the next theater conflict, first.

In addition to high altitude training, the B-52's anti-radiation missile, and its conventional, air launched cruise missile capabilities should be expanded. These will enhance its already enormous ability in a theater conventional conflict. Also, all B-52 aircrews should be capable of providing maritime support, to include launching Harpoon missiles and minelaying operations. This should not be a primary mission, but a secondary one. Additionally, continued development of a new infrared system, and expansion of its satellite communication ability, to include the development of a data link capability, are extremely necessary for future B-52 employment.

Finally, future theater operational commanders must not ignore what the B-52 can bring to a conflict. Even though the B-52 has significant limitations, when compared to modern, stealthy airplanes, it still has a historic, worldwide reputation for being able to

inflict terrible damage on an enemy. Enemy forces feared it during the Southeast Asian conflict, as well as, the Gulf War, 20 years later. If the B-52 is maintained, this fear will continue in the future, and have a definite influence on the next conflict the US is involved in.

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